

**What is claimed is:**

1. A catalyst for hydrogenating aromatic compounds to give the corresponding alicyclic compounds, which comprises at least one metal of the eighth transition group of the periodic table on or in a support material,  
wherein  
the support material has an average pore diameter of from 25 to 50 nm and a specific surface area greater than 30 m<sup>2</sup>/g.
2. The catalyst as claimed in claim 1,  
wherein  
over 90% of the total pore volume of the support materials is made up by meso- and micropores with a diameter of from 0.1 to 50 nm.
3. The catalyst as claimed in claim 1 or 2,  
wherein  
the support material comprises activated carbon, silicon carbide, aluminum oxide, silicon oxide, aluminosilicate, titanium dioxide, zirconium dioxide, magnesium oxide, and/or zinc oxide, or a mixture of these.
4. The catalyst as claimed in any of claims 1 to 3,  
wherein  
the catalyst also comprises at least one metal of the first transition group of the periodic table of the elements.
5. The catalyst as claimed in any of claims 1 to 4,  
wherein  
the catalyst also comprises at least one metal of the seventh transition group of the periodic table of the elements.
6. A process for catalytically hydrogenating aromatic compounds, using hydrogen-containing gases on a catalyst which comprises at least one metal of the eighth transition group of the periodic table on or in a support material,  
which comprises  
using a support material which has an average pore diameter of from 25 to 50 nm and a specific surface area greater than 30 m<sup>2</sup>/g.

7. The process as claimed in claim 6,  
wherein  
over 90% of the total pore volume of the support materials is made  
up by meso- and micropores with a diameter of from 0.1 to 50 nm.
8. The process as claimed in claim 6 or 7,  
wherein  
the support material comprises activated carbon, silicon carbide,  
aluminum oxide, silicon oxide, aluminosilicate, titanium dioxide,  
zirconium dioxide, magnesium oxide, and/or zinc oxide, or a mixture  
of these.
9. The process as claimed in any of claims 6 to 8,  
wherein  
the catalyst also comprises at least one metal of the first transition  
group of the periodic table of the elements.
10. The process as claimed in any of claims 6 to 9,  
wherein  
the catalyst also comprises at least one metal of the seventh  
transition group of the periodic table of the elements.
11. The process as claimed in any of claims 1 to 10,  
wherein  
the aromatic compound used comprises benzenecarboxylic acid,  
biphenylcarboxylic acid, naphthalenecarboxylic acid, diphenyl oxide  
carboxylic acid, or anthracenecarboxylic acid, anhydrides thereof,  
and/or the corresponding esters.
12. The process as claimed in claim 11,  
wherein  
the alcohol components of the esters of the organic compounds are  
alkoxyalkyl groups, cycloalkyl groups, and/or alkyl groups having  
from 1 to 25 carbon atoms, branched or unbranched, and identical  
or different in each instance.